BILL NO. S-81-01-21

SPECIAL ORDINANCE NO. S-38-81

AN ORDINANCE approving an Agreement for an aerial survey between the City of Fort Wayne, Indiana and Air Maps, Inc.

BE IT ORDAINED BY THE COMMON COUNCIL OF THE CITY OF FORT WAYNE, INDIANA:

SECTION 1. That a certain Agreement dated November 12, 1980, between the City of Fort Wayne, Indiana, by and through its Mayor and the Board of Public Works, and Air Maps, Inc. for:

> This project limits the Maumee River west from Anthony Blvd., St. Joseph River South from U.S. 30 By-Pass, St. Mary's River South to Baer Field Thruway, Spy Run Creek South from Coliseum Blvd. They will photograph the rivers and creek and compile topographic maps. The primary object is to obtain topography of the river bottoms while the rivers have been dewatered as well as to show all improvements within the proposed 500 foot strips limit.

at a total cost of $9,103.00, all as more particularly set forth in said Agreement which is on file in the Office of the Board of Public Works and is by reference incorporated herein and made a part hereof, be and the same is in all things hereby ratified, confirmed and approved.

SECTION 2. That this Ordinance shall be in full force and effect from and after its passage and approval by the Mayor.

Vivian G. Schmidt
COUNCILMAN

APPROVED AS TO FORM AND
LEGALITY JANUARY 23, 1981.

J. E. Hoffman
JOHN E. HOFFMAN, CITY ATTORNEY

Read the first time in full and on motion by V. Schmidt, seconded by DiaQuinta, and duly adopted, read the second time by title and referred to the Committee Finance (and the City Plan Commission for recommendation) and Public Hearing to be held after due legal notice, at ~~the Council Chambers, City-County Building~~, Fort Wayne, Indiana, on ~~, the~~ day of , 19 , at o'clock M.,E.S.T.

DATE: 1-27-81

Charles W. Westerman
CHARLES W. WESTERMAN
CITY CLERK

Read the third time in full and on motion by V. Schmidt, seconded by Stier, and duly adopted, placed on its passage. PASSED (~~LOST~~) by the following vote:

	AYES	NAYS	ABSTAINED	ABSENT	TO-WIT:
TOTAL VOTES	9				
BURNS	✓				
EISBART	✓				
GiaQUINTA	✓				
NUCKOLS	✓				
SCHMIDT, D.	✓				
SCHMIDT, V.	✓				
SCHOMBURG	✓				
STIER	✓				
TALARICO	✓				

DATE: 2-17-81

Charles W. Westerman
CHARLES W. WESTERMAN - CITY CLERK

Passed and adopted by the Common Council of the City of Fort Wayne, Indiana, as (~~ZONING MAP~~) (~~GENERAL~~) (~~ANNEXATION~~) (SPECIAL) (~~APPROPRIATION~~) ORDINANCE (~~RESOLUTION~~) No. S-38-81

on the 17th day of February, 19 81.

ATTEST: (SEAL)

Charles W. Westerman
CHARLES W. WESTERMAN - CITY CLERK

John Nuckols
PRESIDING OFFICER

Presented by me to the Mayor of the City of Fort Wayne, Indiana, on the 18th day of February, 19 81, at the hour of 11:00 o'clock A M.,E.S.T.

Charles W. Westerman
CHARLES W. WESTERMAN - CITY CLERK

Approved and signed by me this 19th day of Feb. 19 81, at the hour of 3 o'clock P M.,E.S.T.

WINFIELD C. MOSES, JR.
MAYOR

BILL NO. S-81-01-21

REPORT OF THE COMMITTEE ON FINANCE

WE, YOUR COMMITTEE ON Finance TO WHOM WAS REFERRED AN ORDINANCE approving an Agreement for an aerial survey between the City of Fort Wayne, Indiana and Air Maps, Inc.

HAVE HAD SAID ORDINANCE UNDER CONSIDERATION AND BEG LEAVE TO REPORT BACK TO THE COMMON COUNCIL THAT SAID ORDINANCE Do PASS.

VIVIAN G. SCHMIDT, CHAIRMAN — Vivian G. Schmidt

JAMES S. STIER, VICE CHAIRMAN

MARK E. GiaQUINTA — Mark E. GiaQuinta

PAUL M. BURNS — Paul M. Burns

ROY J. SCHOMBURG — Roy J. Schomburg

CONCURRED IN

DATE 2/17/81 CHARLES W. WESTERMAN, CITY CLERK

70-42-24
11/12/80

TELEPHONE
293-6423
293-5242

AIR MAPS, INC.

55316 JAY DEE STREET ELKHART, INDIANA 46514

November 11, 1980

COMPLETE
PHOTOGRAMMETRIC AND
AERIAL PHOTOGRAPHIC
SERVICES

Carl E. O'Neal
City Engineering Department
City-County Building, Room 750
Fort Wayne, Indiana 46802

NOV 1 1980
TRANSPORTATION

Re: Aerial Survey - Maumee, St. Mary's, St. Joseph Rivers and Spy Run Creek

Dear Carl:

In accordance with our meeting of November 6, 1980 regarding river bottom topography we offer the following proposal for aerial surveying and photogrammetric engineering services:

Project Limits:

Maumee River west from Anthony Blvd., St. Joseph River south from U.S. 30 By-Pass., St. Mary's River south to Baer Field Thruway, Spy Run Creek south from Coliseum Boulevard.

General mapping limits to extend to 250' each side of the river centerlines.

1. To photograph the rivers and creek and to furnish two sets of 9" x 9" aerial photographs at a scale of 1" = 660' and two sets of photographic indexes the cost would be $1,375.00

2. To compile topographic maps at a scale of 1" = 200' with a 2' contour interval and update existing D.N.R. flood plain map scribe coats and produce two sets of mylar tracings from the scribe coats the cost would be $7,728.00

Total Project Cost - $9,103.00

We intend to utilize existing horizontal and vertical field survey data for control. We may require some additional vertical control and it is our understanding that the City will provide this data.

The primary objective is to obtain topography of the river bottoms while the rivers have been dewatered as well as to show all improvements within the proposed 500 foot strip limits. We will, however, make any additional major changes within the limits of the photography.

We have included costs for two sets of all delivery items. One set for the City of Fort Wayne and the other set for the Department of Natural Resources.

All work will be done in accordance with Department of Natural Resources specifications utilized when existing flood plain mapping was contracted thru D.N.R. The specifications are attached and are a part of this proposal.

We are looking forward to working with you on this important project. For your convenience we are making this a Contract Agreement, an executed copy of which will serve as your acceptance of this proposal.

If you should have any questions please do not hesitate to contact us.

Sincerely,

AIR MAPS, INC.

Barry N. Schaar
President

BNS/bl
Enc:

Accepted by: _____
For the City of Fort Wayne, Indiana

Date: 11/13/80

TECHNICAL PROVISIONS

SECTION I - PHOTOGRAPHY

TP-1. Photographic Work. The P/S shall photograph all of the areas necessary for photogrammetric topographic mapping of the area indicated on Exhibit "B", the quality and quantity of which shall conform to the precise technical requirements for the plotting instrument in which it is to be used. The altitude(s) flown and scale(s) of the photography shall be such as to fully comply with accepted human and plotting machine standards for the specified contour interval and map scale. However, before proceeding with the photographic work, the P/S shall submit a plan of the work and a description of the camera(s) and the plotting instrument(s) to be used. If the State determines that the plan and instruments to be used will not produce a map within specified accuracies, the P/S shall be so advised. The P/S shall also submit, in writing and upon execution of this contract, his determination of the number of stereo-models required at the photo scale(s) necessary for plotting on the equipment designated for this project.

TP-2. Camera (General). The photographs shall be taken with a single lens precision aerial mapping camera of a type meeting accepted standard specifications for photogrammetric topographic mapping of the accuracy required by these specifications. The P/S shall submit a copy of his latest camera calibration report or certificate as provided by the U.S. Geological Survey or the U.S. Bureau of Standards and dated by such agency no more than one (1) year prior to the date of this contract.

TP-3. Flight Altitude. The altitudes to be flown and the scales of the photographs shall be such as to fully comply with the accepted standards for mapping at the specified contour interval and map scale on the specific plotters designated for this project.

TP-4. Flight Lines. All photographic strips shall be taken in unbroken flights. The mainbearings of adjacent strips shall be within five (5) degrees of parallel. Particular care shall be exercised to keep all flight lines as straight as possible. In no case shall the lack of parallelism between adjacent strips, or sections thereof, be such as to prevent the sidelap between strips from conforming with requirements herein. Flight lines for all aerial photography shall be oriented in as nearly a north-south or an east-west direction as possible. Diagonal flights for photography to be delivered to the State will not be accepted, even though a lesser number of stereo-plotting models may be realized by such non-cardinal directions.

TP-5. Overlap and Sidelap. The percentage amount of overlap in the line of flight and sidelap between adjacent flight strips shall be in accordance with accepted standards commensurate with the type of photography and photogrammetric plotting equipment used by the P/S and approved by the State. However, the minimum amount of overlap and sidelap, required by the State for future aerial photo work on this project, will be 60 percent (60%) and 30 percent (30%) respectively. All aerial photography to be delivered to the State will be suitable for stereoscopic viewing, by standard methods, of one-hundred (100) percent of the area outlined on Exhibit B.

TP-6. Crab. Any series of two or more consecutive photographs crabbed in excess of ten (10) degrees, as measured from the line of flight (the flight path or "tract" of the airplane as indicated by the principal points of consecutive photographs), will be considered unsatisfactory and will cause the rejection of that particular flight strip. Any one flight course in which the average crab of all photographs, with respect to one flight line, exceeds five (5) degrees will be considered unsatisfactory and will be rejected.

TP-7. Tilt. Where negatives are obtained with the aerial camera in or near a vertical position, tilt (departure of the aerial camera from a vertical line at the time of exposure) shall not exceed four (4) degrees and shall not average more than one (1) degree for the entire project. Where negatives are obtained with the optical axis at a chosen tilt angle relative to the vertical, the obliqueness shall not vary more than four (4) degrees from one photograph to another nor average more than two (2) degrees for the entire project.

TP-8. Film. Only fresh, fine grained, high-speed panchromatic aerial film and glass plate emulsion shall be used. The film emulsion shall be one which is commercially known as "High Grade Topographic Base". The Engineer shall furnish film negatives on spools with suitable metal containers; and if glass plates are used, they shall be furnished in suitable containers in order to prevent damage during handling.

TP-9. Negatives. Negatives shall be clear and sharp in detail, fine-grained, of uniform average density, average contrast, free of clouds and cloud shadow, light streaks, static marks, and stains or other blemishes which, in the opinion of the State, render them unsuitable for their intended purpose.

TP-10. Film Processing. Special care shall be exercised to insure the proper development and the thorough fixation and washing of all film and to avoid distorting it in any way during processing and drying.

TP-11. Photographic Quality. Photographs which are not clear and sharp in detail and of average contrast, and not free from static marks, stains, and other blemishes which, in the opinion of the State, would interfere with their intended purpose, will be rejected.

TP-12. Indexing.

a. Negatives. Each exposure shall be numbered just within the exposed area, in consecutive order throughout the project photography, starting with exposure number one on roll number one and continuing the numbering in consecutive order through all rolls exposed on the project. The project number, roll number, negative number, date, hour of exposure, calibrated focal length of the camera, and altitude above mean project height shall be indicated just outside the exposed area on the first and last negative of each flight strip, thus: P-1,R-1,4, May 3, 1966, 12:05, 153.20, 6000. Exposure and roll numbers shall not be duplicated within the project. The date and exposure number shall appear on each and every negative. The time shall be the Standard Time at the project site.

b. Reflights. All reflights required by the P/S or the State shall have negatives numbered as outlined above. Exposures and rolls shall be numbered in consecutive order with the other project photography. Exposure or roll numbers shall not be repeated within the project.

c. Container. The container for each roll of film, and the glass plates if used, which become the property of the State, shall be clearly labeled with "Department of Natural Resources", Indianapolis, Indiana, the name of the project, the number of the contract, the name of the P/S, the date or dates of exposure, type and serial number of camera, type and serial number of lens, calibrated focal length (in mm.), numbers of first and last exposures, the roll number (in the case of film), and the approximate scale of the photographs.

d. Photo Index Map. A copy of the photo-index map for the area as required by these specifications shall be delivered on 20-inch by 24-inch double-weight semi-matte paper at a legible scale. Photo-index (es) shall be prepared by directly photographing an assembly of single-weight non-glossy prints from all properly indexed and edited vertical negatives used for coverage of the area, carefully laid and stapled to match corresponding images as closely as possible, and clearly showing the roll and exposure number of each photograph. Said prints shall be made without mask and shall be trimmed to the edges of the usable photographic images. The color, tone, and contrast of all prints used shall be approximately the same. Should more than one index map be required to cover the area of photography, a small insert map indicating the portion of the same area which is covered by the individual sheet shall be included on each sheet. The first and last exposure of each flight line shall be so indicated by a white rectangular stick-up bearing the roll and exposure number in black. Said stick-up shall be placed on the photographic print over the corresponding negative annotation and prior to copying of the original photo-index board. A neatly executed title block of suitable size shall be placed at a convenient and easily read location on the photo-index map. The title block shall indicate the project name and State contract number, date of photography, camera name and type; lens name, number, and focal length; original photo scale and graphic bar scale of the photo-index, north arrow, the P/S name and address, and the name and address of the Department of Natural Resources.

TP-13. Photographic Materials to be Furnished.

a. Within thirty (30) calendar days after completion of all flights and reflights that may be required, the P/S shall furnish the State with the following:

1. One (1) complete set of unused contact prints of all exposures on all rolls, prepared on single-weight semi-matte finish commercial grade paper of a manufacturer approved by the State, and trimmed to the usable photographic image.

2. One (1) publication size copy of the aerial photo-index map(s) as described and specified in paragraph TP-12d preceding.

b. Upon completion of the topographic map compilation and prior to termination of this contract, the P/S shall furnish the State with the following:

1. One (1) complete set of contact prints of all exposures on all rolls as previously used by the P/S in preparation of the photo-index map and specified in paragraph TP-12d preceding.

2. One (1) complete set of contact prints of all exposures on all rolls as previously used by the P/S for his location of control or picture points needed for the topographic map compilation and as specified in paragraph TP-15 of these provisions.

3. All rolls of aerial film negatives of all flights properly taken, processed, indexed, contained, and labeled as herebefore specified.

4. All dispositive plates used by the P/S in the topographic map compilation, properly processed, contained, and labeled as herebefore specified.

SECTION 3 - MAP PREPARATION

TP-17. Compilation. The P/S shall compile by stereo-photogrammetric methods, supplemented by such ground and photo control methods as may be selected, base sets of topographic maps, developed on the State Plane Coordinate System and covering the areas shown on Exhibit "B", which shall be developed at a scale of one (1) inch equals two hundred (200) feet with a basic contour interval of two (2) feet.

Only precision stereo-plotting instruments of recognized proven accuracy and of a type approved by the State shall be used in the compilation work. From each base set, the P/S shall develop, in accordance with these specifications, one set of finished reproducible positive drawings for the area indicated on Exhibit "B" at the scale indicated above. The P/S is cautioned that the normal limiting factors or accuracy constants of operation of the stereo-plotting equipment and operating personnel may be exceeded by direct compilation at this specified scale and contour interval: When an excess is contemplated, the P/S shall re-evaluate the designated flight height, projection enlargement, and other functions; and eliminate this excess to normal values by compiling through a reducing-scale pantograph to the desired scale and contour interval. The P/S may also reduce the larger scale direct compilation to desired scale by photographic means, provided scale inaccuracies and/or distortions are not introduced. Scale reductions will be approved and accepted only during the compilation procedure. Scale reductions will not be approved or accepted by the State between the compilation and drafting stages.

a. Stereo-Photogrammetric Manuscripts.

1. Stereo-photogrammetric manuscripts shall be compiled on a highly dimensional stable media, and shall be compiled in pencil, black ink, or by scribing on an opaque media, at publication or larger scale, and on a suitable size sheet to contain one map sheet or one model, or on a 42-inch roll containing several consecutive models along the flight line. Prior to final submission, manuscripts which are developed on rolls shall be cut to sheet size of 28 x 42 inches.

2. Each manuscript shall contain all features obtained by photogrammetric and other means and specified in subsequent paragraphs of these specifications; excepting therefrom names, marginal and general notes, and titles. Only those names and general notes which may aid the P/S in subsequent developments of the manuscript need to be shown. However, each sheet shall contain the project name and means of identification, including geodetic or state plane grid values, model number (corresponding to photograph numbers from which the model was developed), and the number and position designation of adjoining models.

3. Manuscript symbolization shall be the same as the subsequent map drafting symbolization, except that weights and gauges may be approximated; provided however, that the modification does not distort the correct shape or orientation of any feature or create a doubt as to exactly what the symbol represents. All lettering may be done free hand. Each manuscript shall show both the date that the planimetry was completed and the date that the contouring was completed.

4. Upon completion of each manuscript sheet, one (1) print of each sheet shall be submitted to the State for review. Any corrections found to be necessary will be noted on the print and returned to the P/S within fifteen (15) calendar days after receipt of same.

5. Plotting and developing accuracies at the scale indicated in this Provision shall comply with that specified in paragraph TP-23 on accuracies.

TP-18. Drafting.

a. Reproducible Drawings.

1. From the base compilation of stereo-photogrammetric manuscripts, the P/S shall make one drawing, or a reproduction of a combination of one or more drawings for each map sheet, from which a positive reproducible shall be made and furnished. All drafting media shall have at least the dimensional stability and transparency of "Mylar", and shall be at least three thous[illegible]

thick. The final drawing or reproduction shall contain all planimetric, topographic, and geographic features, including woodland areas. The composite reproducible drawing shall be developed from one or more drawings and be prepared in a scribing procedure only. Variance in registration of separate drawings in the makeup of any composites shall not exceed two-thousandths (0.002) of an inch, plus or minus, from the mean.

2. All of the planimetry, topography, and geographic features, in addition to legends, titles, general and marginal notes, coordinate grid values and ticks, names, etc. specified in subsequent paragraphs TP-26 through TP-30 shall be shown on the positive reproducible set. Plotting and drawing accuracies shall comply with those specified in paragraph TP-23. The P/S shall prepare the drawings with clear symbol definitions. Weights and gauges of symbols, arrangement and treatment of marginal and other notes, titles, and diagrams shall comply with the requirements of these specifications. All lettering shall be Standard Leroy (slant or vertical as specified) and shall be accomplished with Standard Leroy lettering templates, using weights and sizes specified in paragraph TP-26.

3. The P/S shall use Exhibit "F" as an illustration for the general style and format of the pre-finished sheet layout at a scale of 1" = 200'. All lettering within the neat map sheet limits and the lettered state plane coordinate values immediately outside of the neat map sheet border may be scribed by the P/S, provided that lettering sizes specified in paragraph TP-26 are approximated, and that weights and guages of lettering are varied and distinctive. However, the lettered data in the lower margin and title block shall not be scribed and shall conform exactly as to sizes, weights, and guages shown on Exhibit "F" unless authorized for alteration in writing by the State. Difficulties encountered by the P/S in complying with this provision may be resolved by procedures familiar to the State.

4. The sheet size for the final set of positives shall conform to the standard 28" x 40" size used by the Department of Natural Resources, Division of Water. Neat map limits shall be 35" north and 25" east, or representing a ground area of 7,000 feet north by 5,000 feet east for mapping at a scale 1" = 200'.

5. The P/S shall prepare and submit to the State, as Sheet No. 1 in the total number of publication drawings, an index to map sheets which shall be superimposed over all or a portion of a screened printable copy of the latest vegetation free edition(s) of the corresponding 7½-minute, 1:24,000 scale topographic quadrangle map(s) as prepared by the U. S. Geological Survey. The P/S shall furnish a printed copy of the completed Sheet No. 1, Map Sheet Index, for review by the State immediately after its drafted completion.

6. The P/S shall also prepare and submit to the State, for prior approval, a reproducible front cover sheet, independent of the survey control diagrams and map index sheets. The layout and style of the front cover or presentation sheet shall be at the discretion and by the ingenuity of the P/S; however, inclusion of such items as project name, small scale location diagrams, contracting agency, contractor names and addresses, complete legend of symbols, scale, and other pertinent general data shall be given due consideration.

TP-19. Compilation and Drafting Work to be Furnished.

a. Upon completion of each of the drafted total original or composite layouts of the front cover sheet, map index sheet, horizontal control diagram, and vertical control diagram, the P/S shall furnish the following materials to the State.

1. Two (2) review prints (diazo) from each of the above four (4) sheets.

2. One (1) approved positive reproducible for each of the above (4) four sheets.

3. One (1) approved final print (diazo) from each approved positive reproducible of the above four (4) sheets.

b. Upon completion of each original manuscript sheet, the P/S shall furnish the following materials to the State.

4. One (1) review print (diazo) from each manuscript sheet.

c. Upon completion of about each five (5) original scribed topographic map sheets taken from the approved manuscript sheet(s), the P/S shall furnish the following materials to the State.

5. Two (2) review prints (diazo) from each map sheet of 28" x 40" size, scale 1" = 200'.

6. One (1) approved positive reproducible of each finished size map sheet.

7. One (1) approved final print (diazo) from each approved positive reproducible of each finished size map sheet.

d. Upon completion of all approved original manuscript sheets and approved positive reproducibles of each topographic map sheet, the P/S shall furnish the following materials to the State.

8. All original and revised manuscript sheets, cut to 28" x 40' sheet size.

9. All original and revised scribed sheets of the front cover, sheet index map, horizontal and vertical control diagrams, and topographic maps.

10. All other pertinent drawing and sketches, either original or revised, single or composite.

The P/S shall not forward the items called for in Provision TP-19 (2), (3), (6), (7), (8), (9), and (10) until notified by the State of approval of items called for in TP-19 (1), (4), and (5).

TP-20. Accuracy Check. Authorized representatives of the Department of Natural Resources may perform any accuracy checks deemed necessary at any time prior to completion or termination of this contract on either the originals or prints of compilation manuscripts or the prints of scribed sheets.

TP-21. Planimetry. All planimetry and planimetric features shall be shown on the stereo-photogrammetric manuscripts and the finished drawings for the area indicated on Exhibit "B", and specified herebefore.

TP-22. Topography. The contouring shall completely cover the areas outlined on Exhibit "B", and specified herebefore. Both the planimetry and topography will extend to the limits indicated. The basic contour interval for the areas outlined shall be two (2) feet with each fifth or even ten (10) foot index contour being accentuated on the finished drawings. All contours shall be labeled in such a manner and at such locations as to cause a minimum effort in identification of any contour.

TP-23. Accuracy. All dimensions and measurements specified below are given for the reproducible drawings at the specified map scale of 1" = 200'.

a. Horizontal.

1. The plotted position of each State plane coordinate grid line or tick shall not vary by more than one one-hundreth (0.01) of an inch from the true grid value on each reproducible drawing of the set.

2. Each primary and secondary horizontal control point shall be plotted within the coordinate grid in which it should lie to an accuracy of one one-hundredth (0.01) of an inch from its true position as expressed by the coordinates computed for the point.

3. Ninety (90) percent of all well-defined planimetric features, with the exception of those unavoidably displaced by exaggerated symbolization, shall be plotted so that their position on the final reproducible maps at publication scale shall be accurate to within at least two one-hundredths (0.02) of an inch of their true coordinate position as determined by test surveys. None of the features tested shall be displaced on the publication scale maps by more than five one-hundredths (0.05) of an inch from their true coordinate positions.

b. Vertical.

1. Ninety (90) percent of all contour elevations, and elevations interpolated from contours, on the publication scale maps shall have an accuracy of one-half (½) contour interval or better with respect to the true elevation. The remaining ten (10) percent of such elevations shall not be in error by more than one contour interval. An allowance of five one-hundredths (0.05) of an inch of horizontal displacement of contours will be applied during checking for vertical accuracy.

2. All spot elevations placed on the reproducible publication scale maps shall have an accuracy of one-fourth (¼) contour interval or better with respect to the true elevation.

TP-24. Marginal Data. The layout, dimensions, and wording of marginal notes and diagrams are shown on the sample style sheet, Exhibit "F". The date of the map sheet shall be the date of the completion of the collection, identification, and classification of map content, normally the date of completion of these operations in the field.

TP-25. Symbolization.

a. Stereo-compilation symbolization shall be the same as drafting symbolization, except that specified weights and gauges need not be strictly adhered to. Roads may not be symbolized as solid spaces, either in the compilation or drafting procedures.

b. The symbols to be used for all planimetric and topographic features shall be as approved by the State. The P/S may, as a preliminary guide only, make general reference to Army Map Service Technical Manual No. 23A, Edition 2 AMS, dated February 1956, with full knowledge and understanding that this manual was produced for specifications of color separation copy, but that the maps to be drafted under this contract will be monochrome copy. The P/S shall also understand that final map positives will be photographically reduced in scale by the State for future publications, and that such future reductions may influence the symbolization, and the weights and gauges thereof. The State thereby directs that all problems or questions of symbolization, and weights and gauges thereof drafted by the P/S, be closely coordinated with the State, and that two prints of each map sheet be forwarded to the State at regular completion intervals so that approval of such items can be made before the P/S proceeds to total completion. Symbol numbers cited herein are those listed in AMS Technical Manual No. 23A.

TP-26. Cultural Features to be Compiled and Drafted on Base Drawings and Tracings.

a. The following features shall be compiled and drafted on the base drawings and on the tracings of sheets at the publication scale.

1. Indiana State Plane Coordinate System ticks, lines, and values (see paragraph b and c below).

2. All marginal notes and diagrams (see Exhibit "F").

3. Names (see par. d below).

4. Roads and trails (see par. e below).

5. Buildings (see par. f below).

6. Railroads (see par. g below).

7. Fences (see par. h below).

8. Power lines (see par. i below).

9. Telephone lines (see par. i below).

10. Horizontal control points (see par. j below).

11. Bench marks (see par. k below).

12. Spot heights (see par. l below).

13. Boundaries (see par. m below).

14. Bridges (see par.n below).

15. Cemeteries (see par. o below).

16. Tanks (symbols 302 through 304).

17. Airfields (see par. p below).

18. Towns (see par. q below).

19. Mines (see par. r below).

20. Quarries (see par. r below).

21. Transformer stations (see par. s below).

22. Dam and Locks (see par. t below).

23. Tunnels (symbol 221, 222, or 543).

24. Ferries (symbol 232 or 233).

25. Stream and lake gages (see par. u below).

26. Highway route markers.

27. Low and high water elevations (see par. v below).

28. Public land data (land lines) and real estate boundaries and ownership (see par. w below).

29. Pipelines (see par. x below).

b. The State Plane Coordinate System shall be shown at 1000-foot intervals for the area to be mapped at 1" = 200'. Sheet neat line limits will be plane coordinate grid lines, and interior grid intersections shall be shown as ticks. Plane coordinate ticks shall be correctly orientated ½" overall crosses with center location positioned at the accuracy specified in provision TP-23a. Coordinate grid ticks at the neat grid lines shall be ½" long and properly orientated. Plane coordinate grid values shall be shown on the left and lower neat grid lines. Weight of grid lines and ticks, and the size and style of lettering and positioning of grid values, are shown on the map style sheet, Exhibit "F".

c. The P/S shall also position each 2½-minute geodetic grid intersection at its proper plane coordinate location on each of the publication maps where such intersections occur. Geodetic grid intersections will be shown within the plane coordinate grid neat lines and will appear as ½" overall open crosses with the center dot location positioned at the accuracy specified in provision TP-23a. Geodetic grid ticks or crosses will also be encircled with a ¼" diameter circle, and labeled to correct 2½-minute intersection value. Weight of grid ticks, and the size and style of lettering and positioning of grid values, are shown on the style sheet, Exhibit "F".

d. The P/S shall use standard "Leroy" style lettering pens and guides for all letter and figure type (vertical and slant) in the production of the final map travings. In general, place names and descriptive type will be vertical and only drainage or hydrologic features labeled in slant type. Capital letters will be used for proper names with caps and lower case being shown on descriptive type. Leroy lettering sizes shall conform approximately to the point type or the range of point type specified below. The P/S shall report to and resolve with the State any differences or difficulties arising from the specified symbolization and type size, style, or positioning in order to expedite an orderly completion to the project.

1. Towns, communities, camps, isolated churches or schools, stations, etc. 8-18 PT.

2. State name (across face of map). 36 PT.

3. County names (shown only along boundaries). 12 PT.

4. State parks, reservations, etc. (across face of map). 8-18 PT.

5. Corporate limits (shown only along boundaries). 6 PT.

6. Horizontal and vertical control point designations. 6 PT.

7. Bench Mark Elevations. 6 PT.

8. Names of roads, railroads, canals, power lines, telephone lines, aqueducts, etc. 6 PT.

9. Names of tunnels, bridges, fords, ferries, cemeteries, stream gages, schools, churches, hospitals, public buildings, (not serving as place names, usually in a town). 8 PT.

10. Bridge data. 6 PT.

11. Notes and labeling (not specified as part of a symbol). 8 PT.

12. Hypsographic features, such as ridges, hills, valleys, etc. 6-10 PT.

13. Islands, river bends, points 8-10 PT.

14. Contour numbers. 6 PT.

15. Streams, ponds, lakes, etc. 8-24 PT.

e. Roads shall be classified only as primary or secondary and symbolized only by continuous or dashed lines, respectively. They will be shown in true edge alignment. City, county, state, and/or federal road designations shall appear by appropriate name and/or number if such are officially assigned. State and Federal Road number symbols will be standard. Line weights of true road edges shall be such as to quickly and easily distinguish them from other line features and contours.

f. All buildings shall be shown to actual size and in true orientation. All buildings of any character or for any purpose will be cross-hatched with eight one-thousandths (0.008) of an inch weight lines spaced five one-hundredths (0.05) of an inch apart at an angle of forty-five (45) degrees to the base of the map sheet. A firm stable zip-a-tone or other stick-up material meeting these symbolization requirements may be used as a substitute for the drafting work involved.

g. All railroad lines, spurs, sidings, and yards shall be shown in true position, except that the center line only shall be drafted for each of the line, spur, siding, and yard tracks if desired. Railroad cross tick symbols shall be spaced consistently and no farther than three-eighths (3/8) of an inch apart. The primary owner and/or operating company of each railroad line, spur, siding, and yard shall be labeled along such feature in an easily read and understanding manner, and in an appropriate size and type.

h. All fences shall be shown except those minor fences definitely not associated with property lines. Fences coincident with the edge of roadways, trails, or railroads may be plotted with a slight offset from the true fence position. All fences shall be symbolized as barbed wire, including single wire, woven wire, and board fences, and will consist of 45° crosses in an opened line, the consistent spacing between sawbuck symbols being no greater than three-eighths (3/8) of an inch apart.

i. All power transmission and telephone lines, both surface and subsurface, shall be shown if they exceed 600 feet in length, including those which lead to residences and farms. Underground sections of power and telephone lines shall be so labeled. Symbols 237 and 243 may be used if related features symbolization dictates.

j. All primary horizontal control points, specified and designated in Section 2 of these provisions, shall be shown. The letter and number identification of the point shall be positioned in vertical type to the left and slightly above the center of the symbol whenever possible. When the primary horizontal control point is also a primary vertical control point, the letter and number identification of the point, as also specified in Section 2 of these provisions, shall be positioned in vertical type to the left and slightly above the center of the symbol, and the elevation to the nearest one-thousandth (0.001) of a foot above mean sea level to the right and slightly below the center of the symbol. All secondary horizontal control points which are of a semi-permanent nature (such as spikes, hubs, or stakes) may be shown as described above and symbol designated in Section 2 of these provisions. No totally unmonumented control points of any order accuracy or for any purpose shall be shown in vertical symbols or type or be designated as above. The vertical symbols and type, and the designations specified above shall apply to the originating marks from which primary field surveys are made, except that the establishing agency initials shall be prefixed to the letter designation, as NGS or IFC & WRC.

k. Primary vertical control points, specified and designated in Section 2 of these provisions, shall be shown as 45° sawbuck crosses if independent of primary horizontal control stations. The identification of the primary vertical control symbol shall be positioned in vertical type letters and numbers to the left and slightly above the symbol. Elevations to the nearest one-thousandth (0.001) of a foot above mean sea level will be placed to the right and slightly below the symbol. No unmonumented vertical control shall be designated by vertical symbol or type.

l. Spot elevations as established both in the field and photogrammetrically shall be shown and labeled to sea-level datum. Those points determined by field surveys and which are recoverable but not permanently monumented, and also those points determined photogrammetrically, shall be shown to the nearest one-tenth (0.1) of a foot above mean sea level. A slanted sawbuck symbol, positioned at the true point of application, with slanted elevation numerals type to the right and slightly below the sawbuck, shall be the proper identification of all spot elevations established by both means. Spot elevations will be shown at the top of all hills and at the bottom of all depressions where the elevation exceeds the top or bottom adjacent contour by more than one (1) foot of elevation. In urban areas, the spot elevations shall be given at major street and road intersections, at prominent points of industrial and large commercial establishments, and at other recoverable points which cannot be readily interpolated from contours. In rural areas, spot elevations shall be given at primary and secondary road intersections, at the intersections of trails, farm lanes and private drives, at primary fence corners, at prominent points of farm building groups, at drainage saddles, and at other recoverable points which cannot be readily interpolated from contours. When road intersections, fence corners, or other intersection feature indicate the location of an elevation, the sawbuck symbol shall be omitted. Spot heights of the accuracy specified shall be shown at intervals of not more than one-thousand (1000) feet, at map scale, along all roads and embankments, where such features are more than one (1) foot above or below the level of the adjacent terrain. The P/S shall also show spot elevations in the floodway of all drainage features, such elevations being not more than five-hundred (500) feet, at map scale, from the adjacent contour or one-thousand (1000) feet from the nearest other spot elevation.

m. Boundaries at corporate limits may be shown by symbol 349, if this symbol is appropriate in relation to other symbols and features. Corporate limits shall also be labeled at appropriate intervals. Private property lines or boundaries will not be determined or indicated by the P/S.

n. All bridges longer than fifty (50) feet in length shall be shown in true plan and with true topography. Bridges less than fifty (50) feet in length may be shown by symbols 223A, 224A, 227A, or 231, if appropriate. All bridges of any length shall be shown with the floor elevation recorded to the nearest one-tenth (0.1) foot (minimum elevation if bridge floor is on a grade or vertical curve).

o. All cemeteries shall be shown, including small family plots of one or more graves. The proper name of the cemetery shall be shown when one is available. The word "cemetery" may be abbreviated only when available space necessitates an abbreviation. The name or label may be placed outside the boundary outline when necessary. Symbol 278 shall be used if appropriately applicable.

p. All areas occupied by airfields may be shown by the dashed outline as illustrated by symbol 276, if appropriate. If the outline is coincident with a fence, road or other feature, the outline and/or the feature may be slightly offset in order to show the outline. All runways, taxiways, ramps, and other appurtenances will be shown and labeled. Hangars and buildings shall also be appropriately symbolized and labeled.

q. Unincorporated towns, villages, or communities shall be evident by the indication of buildings, houses, streets, or other culture. Symbolization is not required. If a local name is applied to an unincorporated area, this name will appear on the map sheet.

r. Mine shafts too small for true planimetric and topographic compilation shall be appropriately shown by symbols 316 or 317. Quarries and open-pit mines shall be shown in their true plan and topography. Where depression contours are indicated, they shall be shown by standard depression ticks consistently spaced no more than three-eighths (3/8) of an inch apart. Ticks on closely spaced adjacent depression contours shall be spaced alternately.

s. Transformer stations, lift stations, pump houses, and such other features shall be plotted to scale if possible, and correctly labeled. When too small for accurate plotting, these features may be shown by the smallest open square or rectangle possible, and delineated by a relative line weight.

t. All dams and weirs, whether earth fill, rubble, masonry, or other material, and exclusive of the size of structure or water impoundment, shall be shown in true scale, plan, and topography. The crest and spillway elevation of the structure, and the tailwater channel elevation, shall be denoted to the nearest one-tenth (0.1) foot of elevation. If the structure has any recognized official or unofficial name, such title shall also be affixed.

u. Stream and lake gages too small for true compilation shall be shown similar to symbol 338, except that the upper left and lower right sectors shall be filled in solid. Identification shall be made and shown on the maps.

v. Any low and/or high water elevations which may be furnished by the State shall be shown.

w. All sections, township, range, grant, and donation lines will be shown by standard symbols and labels. Where definite locations cannot be established by photogrammetric interpretation, field reconnaissance, or surveys, the P/S shall label such locations as approximate.

x. All main or trunk transmission pipelines shall be shown by appropriate symbol and labeled as to type; that is, water, gas, oil, etc. Underground pipelines of any type shall also be so labeled. Underground locations may be obtained from appropriate city or county officials or from the pipeline or transmission company owners.

TP-27. Hypsographic (Relief) Features to be Compiled and Drafted. The following features shall be compiled and drafted on the base drawings and tracing sheets.

1. Contours (see par. a below).
2. Depressions.
3. Cuts and fills.
4. Levees, spoil banks, and embankments.
5. Bluffs and escarpments.

a. Contours at an even 2-foot elevation above mean sea level will be shown, with every fifth contour - or those at even 10-foot elevations, being accentuated, and both with standard symbol and appropriate line weights. Contour elevation values shall be labeled by use of standard "Leroy" sloped figures and be of the size closest approximating 6 PT type. Values shall be of such number and at such location as to facilitate maximum ease in map reading and interpreation. Isolated intermediate contours shall be designated by elevation at enough and at appropriately spaced intervals so as to also minimize map scanning for elevation. No values shall be shown in a closely spaced vertically stacked arrangement. All contours will be shown continuous throughout, except where such contours become coincident with vertical or reversed slope features shown in plan on the map, or when the spacing between adjacent index contours becomes less than the line weight of the index contour. All intermediate contours shall be carried between index contours, except where such contours also become coincident with vertical or reversed slope features shown in plan on the map, or when the spacing between adjacent index or intermediate contours becomes less than the line weight of the intermediate contour. In instances of gradually converging contours, where spacing becomes less than intermediate contour line weight, the P/S shall drop or discontinue intermediate contours one at a time and just immediately prior to a feathering condition. He shall continue the maximum number of remaining intermediate contours between the index contours as the line weight spacing criteria dictates. In areas of dropped or closely spaced contours, the density pattern of line work shall indicate the near actual field conditions of steep slopes. Elevation accuracy checks in areas of necessarily dropped intermediate contours will be based on the carried index contours and positions only.

TP-28. Hydrographic (Drainage) Features to be Compiled and Drafted. The following hydrographic features shall be shown on compilation manuscripts and tracing sheets.

1. Canals (see par. a below).
2. Ditches (see par. a below).
3. Open water areas (see par. a below).
4. Shore lines (see par. a below).
5. Springs.
6. Streams (see par. a below).
7. Swamps, marshes, and bogs (see par. a below).

a. All line and open area drainage features, either or both intermittent and/or perennial, shall be designated by an intermittent stream symbol. Drainage line features shall become divided double line intermittent symbolization at the point where the features in plan become wider than the line weight of symbolization, indicating as true a width condition as possible. Whether fully identifiable by contour shape or not, each drainage-way shall meander on the map as its course or channel meanders on the ground. Open water areas, symbolized by an intermittent drainage outline, such as ponds, reservoirs, and fresh water lakes which have a controlled or nearly stable surface elevation shall be shown in true outline shape, shall be named if a proper name is applied either officially or unofficially, and shall be assigned a sea level datum surface elevation to the nearest one-tenth (0.1) of a foot. Open water areas, symbolized by an intermittent drainage outline, such as swamps, marshes, or bogs, shall be shown in true outline shape, shall be named if a proper name is applied either officially or unofficially, and shall be further designated by appropriate standard marsh or swamp interior symbolization. Elevations or contours below the channel or open water surface areas shall not be surveyed, compiled, or drafted by the P/S. All water surface areas shall be free of shading, pattern, or other symbolization. Where the direction of channel flow is not evident on any map sheet by surface contour crossings, the contractor shall affix a direction of flow arrow of suitable size and location along the channel on that map sheet. Intermittent stream symbolization of channel course and area drainage features shall be of such a line weight as to make them easily distinguished from both index and intermediate contours and cultural feature lines of the map.

TP-29. Woodland Features to be Compiled and Drafted. The following woodland features shall be compiled and drafted.

1. Woods or brushwood.
2. Orchards (labeled).
3. Vineyards (labeled).

a. For the purposes of this project, the woodland features to be compiled and drafted shall include all perennial vegetation that could be of any major or minor consequence in future field surveys, clearing, earth moving, or construction projects within the total area covered by the maps. Minimum canopy density and area requirements will not be a criteria for compilation or drafting. Woodland feature symbolization shall be by compilation type outline; that is, a continuous tree shaped line perimeter of each woodland area. Screened or shaded areas will not be acceptable.

TP-30. Name Information. The P/S shall obtain the proper names of all features such as cities, towns, villages, rivers, streams, lakes, roads, highways, railroads, and all other features of importance, and shall neatly letter the same on each map.

TP-31. Draftsmanship. Professional standards of draftsmanship shall be maintained throughout each phase and procedure in the development of all maps. Line widths shall be consistent and uniform for each feature and for all lengths on each and every sheet. Penciled, inked, or scribed lines, symbols, letters, and figures shall be clear and legible. Each contour shall be sharp and clear. All names and numbers shall be clear in type and meaning, and shall not interfere with map features.

TP-32. Field Checks. The P/S shall make such field checks before, during, and after each phase of the development of the maps as are necessary to insure the adequacy, accuracy, and fulfillment of the photography, surveys, compilation, and drafting requirements specified herein.

THE CITY OF FORT WAYNE

CITY-COUNTY BUILDING • ONE MAIN STREET • FORT WAYNE, INDIANA 46802

board of public works

November 17, 1980

The Common Council
Fort Wayne, Indiana

SUBJECT: Aerial Survey - Maumme, St. Mary's, St. Joe River, Spy Run Creek

Gentlemen and Mrs. Schmidt:

Agreement on subject project has been given to Air Maps, Inc in the amount of $9,103.00. The project limits Maumme River west from Anthony Blvd., St. Joseph River south from U.S. 30 By-Pass., St. Mary's River south to Baer Field Thruway, Spy Run Creek south from Coliseum Blvd.

This project will be paid for by the City of Fort Wayne with 50% reimbursed by the Department of Natural Resources.

The primary objective is to obtain topography of the river bottoms while the rivers has been dewatered. Therefore the Board of Works respectfully requests a "Prior Approval".

Attached for your information is a copy of the agreement with the Consultants.

Sincerely,

BOARD OF PUBLIC WORKS

MARK L. AKERS, CHAIRMAN

CITY OF FORT WAYNE

WIN MOSES, JR., MAYOR

sa

APPROVED:

Attest Charles W. Westerman

AN EQUAL OPPORTUNITY EMPLOYER

TITLE OF ORDINANCE Agreement for Aerial Survey to photograph topography of the River bottoms.

5097

DEPARTMENT REQUESTING ORDINANCE BOARD OF PUBLIC WORKS L-81-01-21

SYNOPSIS OF ORDINANCE This Agreement between the City of Fort Wayne and Air Maps, Inc. limits the Maumee River west from Anthony Blvd., St. Joseph River South from U.S. 30 By-Pass, St. Mary's River south to Baer Field Thruway, Spy Run Creek south from Coliseum Blvd. They will photograph the rivers and creek and compile topographic maps. The primary objective is to obtain topography of the river bottoms while the rivers have been dewatered as well as to show all improvements within the proposed 500 foot strips limit. Prior Approval was acquired November 17, 1980.

EFFECT OF PASSAGE The employment of Air Maps, Inc. to furnish the City with information regarding our river and creek bottoms.

EFFECT OF NON-PASSAGE The above described project could not be possible.

MONEY INVOLVED (DIRECT COSTS, EXPENDITURES, SAVINGS) Total cost of the project is $9,103.00 which is to be paid by the City of Fort Wayne. 50% of this will be reimbursed by the Department of Natural Resources.

ASSIGNED TO COMMITTEE

sa